



## SEQUENCE LISTING

<110> Ausubel, Frederick M.  
Staskawicz, Brian J.  
Brent, Andrew F.  
Dahlbeck, Douglas  
Katagiri, Fumiaki  
Kunkel, Barbara N.  
Mindrinos, Michael N.  
Yu, Guo-Liang

<120> RPS2 GENE FAMILY, PRIMERS, PROBES, AND  
DETECTION METHODS

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<140> US 10/613,472  
<141> 2003-07-02

<150> US 09/867,852  
<151> 2001-05-29

<150> US 09/310,912  
<151> 1994-09-22

<150> US 09/301,085  
<151> 1999-04-28

<150> US 08/227,360  
<151> 1994-04-13

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20 25 30  
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<210> 60  
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<212> PRT  
<213> Arabidopsis thaliana

<400> 60  
Val Lys Glu Arg Ala Arg Asn His Arg Asn Gly Phe His Leu Ile Ser  
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Tyr Arg Trp Leu Cys Ser Gly Val Val  
20 25

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<400> 61  
Ile Tyr Glu Tyr Gly Gly Glu Lys Arg Thr  
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<210> 62  
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<210> 63  
<211> 23  
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<400> 63  
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Asn Ser Pro Thr Phe Ser Glu Val  
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<211> 35  
<212> PRT  
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<400> 66  
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Arg Leu Cys Arg Leu Gln Thr Val Gln Glu Gly Phe Cys His Ile Glu

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<400> 67  
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<400> 68  
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<400> 71  
Gln Arg Ala Asp His Lys Arg Thr Ser Val  
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<400> 72  
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Ser Ala Ser Arg Trp Ser Thr Val Gly Phe Ile Leu Gly Arg Glu Gly  
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Asp Arg Arg Lys Gln Ser Phe Glu Asp Ile Gln Ser Phe Glu Thr Glu  
35 40 45  
Thr Phe Leu Val Val Ala Arg  
50 55

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1 5 10 15

<210> 74  
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<212> PRT  
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<400> 74  
Arg Asp Arg Arg Arg Val Asp Pro Cys  
1 5

<210> 75  
<211> 41  
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<400> 75  
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Glu Glu Thr Arg Val Gly Ala Val Leu  
35 40

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1 5 10 15  
Gly Asp Tyr Ser Glu  
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<211> 17  
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Met Trp Arg Ile Ala Thr Ser Val Asp His Phe Arg Arg Ser His Gly  
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Ile Gln Leu Arg Gln Pro Arg Glu  
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Val Leu Gly Arg Arg Arg Val Ser His Gln Leu Pro Trp Arg  
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<211> 22  
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Phe Val Gly Asn Arg Arg  
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<212> PRT  
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Glu Asn Thr Gly Glu Asp Ala  
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Gly Ala Asp Pro Ser  
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Gln Asn Pro Asp Leu Ala  
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<400> 88  
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Val Arg Asn Lys Asp Lys Cys Ile Ala Thr Gly Ala Trp Glu Ser  
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<210> 89  
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<400> 89  
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Pro Thr Arg Cys His Met Leu Ala Glu Gln Ala Arg Gly Ser Glu Leu  
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<211> 10  
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<400> 95  
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<210> 96  
<211> 58  
<212> PRT  
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<400> 96  
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1 5 10 15  
Asn Gln Ser Val Gly Lys Phe Cys Lys Pro Arg Leu Ser Ala Glu Tyr  
20 25 30  
Pro Leu His Lys His Phe Thr Leu Gln Gln Ala Glu Glu Cys Leu Met

35                    40                    45  
Gly Ser Glu Thr Pro Lys Ala Arg Gly Asp  
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Ser Ile Arg Arg Arg Ser Asn Ile Val Pro Lys Pro Glu Asp Leu Glu  
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Asn

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Lys Ser

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<400> 101  
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<210> 102  
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<400> 102  
Glu Leu Arg Ala Leu Cys Thr Asn Met Ser Ile His Lys Met  
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<210> 103  
<211> 23  
<212> PRT  
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<400> 103  
Gln Glu Ala Arg Lys Val Val Pro Val Lys Ser Ser Thr Phe His Ile  
1 5 10 15  
Ala Thr Lys Leu Glu Ile Met  
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<210> 104  
<211> 6  
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<400> 104  
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<210> 105  
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<212> DNA  
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gcgcatcatg gagctatttgc gaattttcg agggttatcg attcgtatgt ggaacccatt 120  
cattgttgg aaccaccaac ggacgactta acaagctccc cgagggtgcatt gatgaaaatt 180  
gctccagttg ccataaatca cagcccgctc agcagggagg tcccgtcaca cgcggcaccc 240  
actcaggcaa agcaaaccac ccttcaatct gaagctggcg atttagatgc aaaaaaaagt 300  
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aagatagagg ttccggcatt tggagggtgg ttcaaaaaga aatcatctaa gcacgagacg 420  
ggcggttcaa gtgccaacgc agatagttcg agcgtggctt ccgattccac cggaaaaacct 480  
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gagctctatg aggaaaggga ggcgccagct gggctacaag attttcaga tgtagaaagg 660  
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gaagagttgg gtgcactgtt gtataagcac gggccgatta tatttgggtg gaaaactccg 780

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gcggcatcat gacaagccc tgatgccgc agcagctacc tgaatgccgt ctggctttt 1020  
ggtccttatt gtcgtatccg gaagatgacg tcaaagaatc tcggcaagag ctttcttgct 1080  
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cgagtcactg cccaccaacg tcacgcaccc gacgccaagc ttgaggcagt gctcccgaa 1440  
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<210> 106

<211> 255

<212> PRT

<213> Arabidopsis thaliana

<400> 106

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									20			25		30	
Ser	Glu	Ala	Gly	Asp	Leu	Asp	Ala	Arg	Lys	Ser	Ser	Ala	Ser	Ser	Pro
								35		40		45			
Glu	Thr	Arg	Ala	Leu	Leu	Ala	Thr	Lys	Thr	Val	Leu	Gly	Arg	His	Lys
								50		55		60			
Ile	Glu	Val	Pro	Ala	Phe	Gly	Gly	Trp	Phe	Lys	Lys	Lys	Ser	Ser	Lys
								65		70		75		80	
His	Glu	Thr	Gly	Gly	Ser	Ser	Ala	Asn	Ala	Asp	Ser	Ser	Ser	Val	Ala
								85		90		95			
Ser	Asp	Ser	Thr	Glu	Lys	Pro	Leu	Phe	Arg	Leu	Thr	His	Val	Pro	Tyr
								100		105		110			
Val	Ser	Gln	Gly	Asn	Glu	Arg	Met	Gly	Cys	Trp	Tyr	Ala	Cys	Ala	Arg
								115		120		125			
Met	Val	Gly	His	Ser	Val	Glu	Ala	Gly	Pro	Arg	Leu	Gly	Leu	Pro	Glu
								130		135		140			
Leu	Tyr	Glu	Gly	Arg	Glu	Ala	Pro	Ala	Gly	Leu	Gln	Asp	Phe	Ser	Asp
								145		150		155		160	
Val	Glu	Arg	Phe	Ile	His	Asn	Glu	Gly	Leu	Thr	Arg	Val	Asp	Leu	Pro
								165		170		175			
Asp	Asn	Glu	Arg	Phe	Thr	His	Glu	Glu	Leu	Gly	Ala	Leu	Tyr	Lys	
								180		185		190			
His	Gly	Pro	Ile	Ile	Phe	Gly	Trp	Lys	Thr	Pro	Asn	Asp	Ser	Trp	His
								195		200		205			
Met	Ser	Val	Leu	Thr	Gly	Val	Asp	Lys	Glu	Thr	Ser	Ser	Ile	Thr	Phe
								210		215		220			
His	Asp	Pro	Arg	Gln	Gly	Pro	Asp	Leu	Ala	Met	Pro	Leu	Asp	Tyr	Phe
								225		230		235		240	
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<211> 1258

<212> PRT

<213> Arabidopsis thaliana

<400> 107

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Val Asn Asp Asp Asp Asp Ser Thr Ser Glu Val Asp Ala Ile Ser Asp  
35 40 45  
Ser Thr Asn Pro Ser Gly Ser Phe Pro Ser Val Glu Tyr Glu Val Phe  
50 55 60  
Leu Ser Phe Arg Gly Pro Asp Thr Arg Glu Gln Phe Thr Asp Phe Leu  
65 70 75 80  
Tyr Gln Ser Leu Arg Arg Tyr Lys Ile His Thr Phe Arg Asp Asp Asp  
85 90 95  
Glu Leu Leu Lys Gly Lys Glu Ile Gly Pro Asn Leu Leu Arg Ala Ile  
100 105 110  
Asp Gln Ser Lys Ile Tyr Val Pro Ile Ile Ser Ser Gly Tyr Ala Asp  
115 120 125  
Ser Lys Trp Cys Leu Met Glu Leu Ala Glu Ile Val Arg Arg Gln Glu  
130 135 140  
Glu Asp Pro Arg Arg Ile Ile Leu Pro Ile Phe Tyr Met Val Asp Pro  
145 150 155 160  
Ser Asp Val Arg His Gln Thr Gly Cys Tyr Lys Lys Ala Phe Arg Lys  
165 170 175  
His Ala Asn Lys Phe Asp Gly Gln Thr Ile Gln Asn Trp Lys Asp Ala  
180 185 190  
Leu Lys Lys Val Gly Asp Leu Lys Gly Trp His Ile Gly Lys Asn Asp  
195 200 205  
Lys Gln Gly Ala Ile Ala Asp Lys Val Ser Ala Asp Ile Trp Ser His  
210 215 220  
Ile Ser Lys Glu Asn Leu Ile Leu Glu Thr Asp Glu Leu Val Gly Ile  
225 230 235 240  
Asp Asp His Ile Thr Ala Val Leu Glu Lys Leu Ser Leu Asp Ser Glu  
245 250 255  
Asn Val Thr Met Val Gly Leu Tyr Gly Met Gly Gly Ile Gly Lys Thr  
260 265 270  
Thr Thr Ala Lys Ala Val Tyr Asn Lys Ile Ser Ser Cys Phe Asp Cys  
275 280 285  
Cys Cys Phe Ile Asp Asn Ile Arg Glu Thr Gln Glu Lys Asp Gly Val  
290 295 300  
Val Val Leu Gln Lys Lys Leu Val Ser Glu Ile Leu Arg Ile Asp Ser  
305 310 315 320  
Gly Ser Val Gly Phe Asn Asn Asp Ser Gly Gly Arg Lys Thr Ile Lys  
325 330 335  
Glu Arg Val Ser Arg Phe Lys Ile Leu Val Val Leu Asp Asp Val Asp  
340 345 350  
Glu Lys Phe Lys Phe Glu Asp Met Leu Gly Ser Pro Lys Asp Phe Ile  
355 360 365  
Ser Gln Ser Arg Phe Ile Ile Thr Ser Arg Ser Met Arg Val Leu Gly  
370 375 380  
Thr Leu Asn Glu Asn Gln Cys Lys Leu Tyr Glu Val Gly Ser Met Ser  
385 390 395 400  
Lys Pro Arg Ser Leu Glu Leu Phe Ser Lys His Ala Phe Lys Lys Asn  
405 410 415  
Thr Pro Pro Ser Ser Tyr Tyr Glu Thr Leu Ala Asn Asp Val Val Asp  
420 425 430  
Thr Thr Ala Gly Leu Pro Leu Thr Leu Lys Val Ile Gly Ser Leu Leu

435	440	445
Phe	Gln	Glu
Lys	Gln	Glu
Ile	Ala	Val
Trp	Glu	Asp
Arg	Thr	Leu
Asn	Asn	Leu
Leu	Asp	Glu
Tyr	Val	Val
Asp	Arg	Tyr
Leu	Lys	Asp
Ile	Ile	Ile
Phe	Gln	Glu
Leu	Asp	Ile
Asp	Ile	Cys
450	455	460
Arg	Thr	Leu
Asn	Asn	Leu
Leu	Asp	Glu
Tyr	Val	Val
Asp	Arg	Tyr
Leu	Lys	Asp
Ile	Ile	Ile
Phe	Gln	Glu
Leu	Asp	Ile
Asp	Ile	Cys
465	470	475
480	485	490
495	500	505
510	515	520
525	530	535
540	545	550
555	560	565
575	580	585
590	595	600
605	610	615
620	625	630
640	645	650
655	660	665
670	675	680
685	690	695
700	705	710
720	725	730
735	740	745
750	755	760
765	770	775
780	785	790
800	805	810
815	820	825
830	835	840
845	850	855
860	865	870
880	885	890
895		

Pro Thr Trp Leu Pro Gly Ile Glu Asn Leu Glu Asn Leu Thr Ser Leu  
                  900                     905                     910  
 Glu Val Asn Asp Ile Phe Gln Thr Leu Gly Gly Asp Leu Asp Gly Leu  
                  915                     920                     925  
 Gln Gly Leu Arg Ser Leu Glu Ile Leu Arg Ile Arg Lys Val Asn Gly  
                  930                     935                     940  
 Leu Ala Arg Ile Lys Gly Leu Lys Asp Leu Leu Cys Ser Ser Thr Cys  
                  945                     950                     955                     960  
 Lys Leu Arg Lys Phe Tyr Ile Thr Glu Cys Pro Asp Leu Ile Glu Leu  
                  965                     970                     975  
 Leu Pro Cys Glu Leu Gly Val Gln Thr Val Val Val Pro Ser Met Ala  
                  980                     985                     990  
 Glu Leu Thr Ile Arg Asp Cys Pro Arg Leu Glu Val Gly Pro Met Ile  
                  995                     1000                    1005  
 Arg Ser Leu Pro Lys Phe Pro Met Leu Lys Lys Leu Asp Leu Ala Val  
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 Ala Asn Ile Thr Lys Glu Glu Asp Leu Asp Ala Ile Gly Ser Leu Glu  
                  1025                    1030                    1035                     1040  
 Glu Leu Val Ser Leu Glu Leu Glu Leu Asp Asp Thr Ser Ser Gly Ile  
                  1045                    1050                    1055  
 Glu Arg Ile Val Ser Ser Ser Lys Leu Gln Lys Leu Thr Thr Leu Val  
                  1060                    1065                    1070  
 Val Lys Val Pro Ser Leu Arg Glu Ile Glu Gly Leu Glu Glu Leu Lys  
                  1075                    1080                    1085  
 Ser Leu Gln Asp Leu Tyr Leu Glu Gly Cys Thr Ser Leu Gly Arg Leu  
                  1090                    1095                    1100  
 Pro Leu Glu Lys Leu Lys Glu Leu Asp Ile Gly Gly Cys Pro Asp Leu  
                  1105                    1110                    1115                     1120  
 Thr Glu Leu Val Gln Thr Val Val Ala Val Pro Ser Leu Arg Gly Leu  
                  1125                    1130                    1135  
 Thr Ile Arg Asp Cys Pro Arg Leu Glu Val Gly Pro Met Ile Gln Ser  
                  1140                    1145                    1150  
 Leu Pro Lys Phe Pro Met Leu Asn Glu Leu Thr Leu Ser Met Val Asn  
                  1155                    1160                    1165  
 Ile Thr Lys Glu Asp Glu Leu Glu Val Leu Gly Ser Leu Glu Glu Leu  
                  1170                    1175                    1180  
 Asp Ser Leu Glu Leu Thr Leu Asp Asp Thr Cys Ser Ser Ile Glu Arg  
                  1185                    1190                    1195                     1200  
 Ile Ser Phe Leu Ser Lys Leu Gln Lys Leu Thr Thr Leu Ile Val Glu  
                  1205                    1210                    1215  
 Val Pro Ser Leu Arg Glu Ile Glu Gly Leu Ala Glu Leu Lys Ser Leu  
                  1220                    1225                    1230  
 Arg Ile Leu Tyr Leu Glu Gly Cys Thr Ser Leu Glu Arg Leu Trp Pro  
                  1235                    1240                    1245  
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 <212> PRT  
 <213> Arabidopsis thaliana

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Leu Glu Tyr Gly Ala Thr Ile Pro Gly Glu Leu Cys Lys Ala Ile Glu		
50	55	60
Glu Ser Gln Phe Ala Ile Val Val Phe Ser Glu Asn Tyr Ala Thr Ser		
65	70	75
Arg Trp Cys Leu Asn Glu Leu Val Lys Ile Met Glu Cys Lys Thr Arg		
85	90	95
Phe Lys Gln Thr Val Ile Pro Ile Phe Tyr Asp Val Asp Pro Ser His		
100	105	110
Val Arg Asn Gln Lys Glu Ser Phe Ala Lys Ala Phe Glu Glu His Glu		
115	120	125
Thr Lys Tyr Lys Asp Asp Val Glu Gly Ile Gln Arg Trp Arg Ile Ala		
130	135	140
Leu Asn Glu Ala Ala Asn Leu Lys Gly Ser Cys Asp Asn Arg Asp Lys		
145	150	155
Thr Asp Ala Asp Cys Ile Arg Gln Ile Val Asp Gln Ile Ser Ser Lys		
165	170	175
Leu Cys Lys Ile Ser Leu Ser Tyr Leu Gln Asn Ile Val Gly Ile Asp		
180	185	190
Thr His Leu Glu Lys Ile Glu Ser Leu Leu Glu Ile Gly Ile Asn Gly		
195	200	205
Val Arg Ile Met Gly Ile Trp Gly Met Gly Gly Val Gly Lys Thr Thr		
210	215	220
Ile Ala Arg Ala Ile Phe Asp Thr Leu Leu Gly Arg Met Asp Ser Ser		
225	230	235
Tyr Gln Phe Asp Gly Ala Cys Phe Leu Lys Asp Ile Lys Glu Asn Lys		
245	250	255
Arg Gly Met His Ser Leu Gln Asn Ala Leu Leu Ser Glu Leu Leu Arg		
260	265	270
Glu Lys Ala Asn Tyr Asn Asn Glu Glu Asp Gly Lys His Gln Met Ala		
275	280	285
Ser Arg Leu Arg Ser Lys Lys Val Leu Ile Val Leu Asp Asp Ile Asp		
290	295	300
Asn Lys Asp His Tyr Leu Glu Tyr Leu Ala Gly Asp Leu Asp Trp Phe		
305	310	315
Gly Asn Gly Ser Arg Ile Ile Ile Thr Thr Arg Asp Lys His Leu Ile		
325	330	335
Glu Lys Asn Asp Ile Ile Tyr Glu Val Thr Ala Leu Pro Asp His Glu		
340	345	350
Ser Ile Gln Leu Phe Lys Gln His Ala Phe Gly Lys Glu Val Pro Asn		
355	360	365
Glu Asn Phe Glu Lys Leu Ser Leu Glu Val Val Asn Tyr Ala Lys Gly		
370	375	380
Leu Pro Leu Ala Leu Lys Val Trp Gly Ser Leu Leu His Asn Leu Arg		
385	390	395
Leu Thr Glu Trp Lys Ser Ala Ile Glu His Met Lys Asn Asn Ser Tyr		
405	410	415
Ser Gly Ile Ile Asp Lys Leu Lys Ile Ser Tyr Asp Gly Leu Glu Pro		
420	425	430
Lys Gln Gln Glu Met Phe Leu Asp Ile Ala Cys Phe Leu Arg Gly Glu		
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Glu Lys Asp Tyr Ile Leu Gln Ile Leu Glu Ser Cys His Ile Gly Ala		
450	455	460
Glu Tyr Gly Leu Arg Ile Leu Ile Asp Lys Ser Leu Val Phe Ile Ser		
465	470	475
		480

Glu Tyr Asn Gln Val Gln Met His Asp Leu Ile Gln Asp Met Gly Lys  
485 490 495  
Tyr Ile Val Asn Phe Gln Lys Asp Pro Gly Glu Arg Ser Arg Leu Trp  
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Ala Met Glu Ala Ile Trp Val Ser Ser Tyr Ser Ser Thr Leu Arg Phe  
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565 570 575  
Arg Cys Phe Val Cys Thr Asn Tyr Pro Trp Glu Ser Phe Pro Ser Thr  
580 585 590  
Phe Glu Leu Lys Met Leu Val His Leu Gln Leu Arg His Asn Ser Leu  
595 600 605  
Arg His Leu Trp Thr Glu Thr Lys His Leu Pro Ser Leu Arg Arg Ile  
610 615 620  
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625 630 635 640  
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660 665 670  
Leu Asn Asp Cys Lys Ser Leu Lys Arg Phe Pro Cys Val Asn Val Glu  
675 680 685  
Ser Leu Glu Tyr Leu Gly Leu Arg Ser Cys Asp Ser Leu Glu Lys Leu  
690 695 700  
Pro Glu Ile Tyr Gly Arg Met Lys Pro Glu Ile Gln Ile His Met Gln  
705 710 715 720  
Gly Ser Gly Ile Arg Glu Leu Pro Ser Ser Ile Phe Gln Tyr Lys Thr  
725 730 735  
His Val Thr Lys Leu Leu Trp Asn Met Lys Asn Leu Val Ala Leu  
740 745 750  
Pro Ser Ser Ile Cys Arg Leu Lys Ser Leu Val Ser Leu Ser Val Ser  
755 760 765  
Gly Cys Ser Lys Leu Glu Ser Leu Pro Glu Glu Ile Gly Asp Leu Asp  
770 775 780  
Asn Leu Arg Val Phe Asp Ala Ser Asp Thr Leu Ile Leu Arg Pro Pro  
785 790 795 800  
Ser Ser Ile Ile Arg Leu Asn Lys Leu Ile Ile Leu Met Phe Arg Gly  
805 810 815  
Phe Lys Asp Gly Val His Phe Glu Phe Pro Pro Val Ala Glu Gly Leu  
820 825 830  
His Ser Leu Glu Tyr Leu Asn Leu Ser Tyr Cys Asn Leu Ile Asp Gly  
835 840 845  
Gly Leu Pro Glu Glu Ile Gly Ser Leu Ser Ser Leu Lys Lys Leu Asp  
850 855 860  
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865 870 875 880  
Gly Ala Leu Gln Ser Leu Asp Leu Lys Asp Cys Gln Arg Leu Thr Gln  
885 890 895  
Leu Pro Glu Leu Pro Pro Glu Leu Asn Glu Leu His Val Asp Cys His  
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Met Ala Leu Lys Phe Ile His Tyr Leu Val Thr Lys Arg Lys Lys Leu  
915 920 925  
His Arg Val Lys Leu Asp Asp Ala His Asn Asp Thr Met Tyr Asn Leu

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Phe Ala Tyr Thr Met Phe Gln Asn Ile Ser Ser Met Arg His Asp Ile		
945	950	955
Ser Ala Ser Asp Ser Leu Ser Leu Thr Val Phe Thr Gly Gln Pro Tyr		960
965	970	975
Pro Glu Lys Ile Pro Ser Trp Phe His His Gln Gly Trp Asp Ser Ser		
980	985	990
Val Ser Val Asn Leu Pro Glu Asn Trp Tyr Ile Pro Asp Lys Phe Leu		
995	1000	1005
Gly Phe Ala Val Cys Tyr Ser Arg Ser Leu Ile Asp Thr Thr Ala His		
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Leu Ile Pro Val Cys Asp Asp Lys Met Ser Arg Met Thr Gln Lys Leu		
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Ala Leu Ser Glu Cys Asp Thr Glu Ser Ser Asn Tyr Ser Glu Trp Asp		1040
1045	1050	1055
Ile His Phe Phe Val Pro Phe Ala Gly Leu Trp Asp Thr Ser Lys		
1060	1065	1070
Ala Asn Gly Lys Thr Pro Asn Asp Tyr Gly Ile Ile Arg Leu Ser Phe		
1075	1080	1085
Ser Gly Glu Glu Lys Met Tyr Gly Arg Leu Arg Leu Tyr Lys Glu Gly		
1090	1095	1100
Pro Glu Val Asn Ala Leu Leu Gln Met Arg Glu Asn Ser Asn Glu Pro		
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Thr Glu His Ser Thr Glu Ile Arg Arg Thr Gln Tyr Asn Asn Arg Thr		1120
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Ser Glu Ser Tyr Val Glu His Asp Glu Ala Cys Gly Leu Ile Ala Arg		
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Val Ser Val Met Ala Tyr Lys Ala Glu Tyr Val Ile Asp Ser Cys Leu		
50	55	60
Ala Tyr Ser His Pro Leu Trp Tyr Lys Val Leu Trp Ile Ser Glu Val		
65	70	75
		80
Leu Glu Asn Ile Lys Leu Val Asn Lys Val Val Gly Glu Thr Cys Glu		
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Arg Arg Asn Thr Glu Val Thr Val His Glu Val Ala Lys Thr Thr Thr		
100	105	110
Asn Val Ala Pro Ser Phe Ser Ala Tyr Thr Gln Arg Ala Asn Glu Glu		
115	120	125
Met Glu Gly Phe Gln Asp Thr Ile Asp Glu Leu Lys Asp Lys Leu Leu		
130	135	140
Gly Gly Ser Pro Glu Leu Asp Val Ile Ser Ile Val Gly Met Pro Gly		
145	150	155
Leu Gly Lys Thr Thr Leu Ala Lys Lys Ile Tyr Asn Asp Pro Glu Val		160
165	170	175

Thr Ser Arg Phe Asp Val His Ala Gln Cys Val Val Thr Gln Leu Tyr  
                  180                 185                 190  
 Ser Trp Arg Glu Leu Leu Leu Thr Ile Leu Asn Asp Val Leu Glu Pro  
                  195                 200                 205  
 Ser Asp Arg Asn Glu Lys Glu Asp Gly Glu Ile Ala Asp Glu Leu Arg  
                  210                 215                 220  
 Arg Phe Leu Leu Thr Lys Arg Phe Leu Ile Leu Ile Asp Asp Val Trp  
                  225                 230                 235                 240  
 Asp Tyr Lys Val Trp Asp Asn Leu Cys Met Cys Phe Ser Asp Val Ser  
                  245                 250                 255  
 Asn Arg Ser Arg Ile Ile Leu Thr Thr Arg Leu Asn Asp Val Ala Glu  
                  260                 265                 270  
 Tyr Val Lys Cys Glu Ser Asp Pro His His Leu Arg Leu Phe Arg Asp  
                  275                 280                 285  
 Asp Glu Ser Trp Thr Leu Leu Gln Lys Glu Val Phe Gln Gly Glu Ser  
                  290                 295                 300  
 Cys Pro Pro Glu Leu Glu Asp Val Gly Phe Glu Ile Ser Lys Ser Cys  
                  305                 310                 315                 320  
 Arg Gly Leu Pro Leu Ser Val Val Leu Val Ala Gly Val Leu Lys Gln  
                  325                 330                 335  
 Lys Lys Lys Thr Leu Asp Ser Trp Lys Val Val Glu Gln Ser Leu Ser  
                  340                 345                 350  
 Ser Gln Arg Ile Gly Ser Leu Glu Glu Ser Ile Ser Ile Ile Gly Phe  
                  355                 360                 365  
 Ser Tyr Lys Asn Leu Pro His Tyr Leu Lys Pro Cys Phe Leu Tyr Phe  
                  370                 375                 380  
 Gly Gly Phe Leu Gln Gly Lys Asp Ile His Asp Ser Lys Met Thr Lys  
                  385                 390                 395                 400  
 Leu Trp Val Ala Glu Glu Phe Val Gln Ala Asn Asn Glu Lys Gly Gln  
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Arg Asp Asp Leu Thr Leu Arg Ile Gln Gln Asp Gly Leu Glu Gly Arg  
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Ser Cys Ser Asn Arg Ala Arg Glu Trp Leu Ser Ala Val Gln Val Thr  
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Glu Thr Lys Thr Ala Leu Leu Leu Val Arg Phe Arg Arg Arg Glu Gln  
85 90 95  
Arg Thr Arg Met Arg Arg Arg Tyr Leu Ser Cys Phe Gly Cys Ala Asp  
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Tyr Lys Leu Cys Lys Lys Val Ser Ala Ile Leu Lys Ser Ile Gly Glu  
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Val Thr Cys Arg Glu Ile Pro Ile Lys Ser Val Val Gly Asn Thr Thr  
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Ile Ile Gly Val Tyr Gly Pro Gly Gly Val Gly Lys Thr Thr Leu Met  
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Gln Ser Ile Asn Asn Glu Leu Ile Thr Lys Gly His Gln Tyr Asp Val  
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Thr Thr Arg Ser Ile Ala Leu Cys Asn Asn Met Gly Ala Glu Tyr Lys  
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Ser Lys Val Trp Arg Lys Asp Leu Leu Glu Ser Ser Ser Ile Arg Arg  
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Ile His Ala Ser Glu Val Leu Thr Arg Phe Pro Ala Glu Met Lys Gly  
370 375 380  
Met Asn Tyr Val Phe Ala Leu Leu Lys Phe Ser Tyr Asp Asn Leu Glu  
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420 425 430  
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435 440 445  
Phe Leu Ile Gly Asp Leu Lys Ala Ala Cys Leu Leu Glu Thr Gly Asp  
450 455 460  
Glu Lys Thr Gln Val Lys Met His Asn Val Val Arg Ser Phe Ala Leu  
465 470 475 480  
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485 490 495  
Pro Ser Met Gly His Thr Glu Ala Pro Lys Ala Glu Asn Trp Arg Gln  
500 505 510  
Ala Leu Val Ile Ser Leu Leu Asp Asn Arg Ile Gln Thr Leu Pro Glu  
515 520 525  
Lys Leu Ile Cys Pro Lys Leu Thr Thr Leu Met Leu Gln Gln Asn Ser  
530 535 540  
Ser Leu Lys Lys Ile Pro Thr Gly Phe Phe Met His Met Pro Val Leu  
545 550 555 560  
Arg Val Leu Asp Leu Ser Phe Thr Ser Ile Thr Glu Ile Pro Leu Ser  
565 570 575  
Ile Lys Tyr Leu Val Glu Leu Tyr His Leu Ser Met Ser Gly Thr Lys  
580 585 590  
Ile Ser Val Leu Pro Gln Glu Leu Gly Asn Leu Arg Lys Leu Lys His  
595 600 605  
Leu Asp Leu Gln Arg Thr Gln Phe Leu Gln Thr Ile Pro Arg Asp Ala  
610 615 620  
Ile Cys Trp Leu Ser Lys Leu Glu Val Leu Asn Leu Tyr Tyr Ser Tyr  
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Ala Gly Trp Glu Leu Gln Ser Phe Gly Glu Asp Glu Ala Glu Glu Leu  
645 650 655  
Gly Phe Ala Asp Leu Glu Tyr Leu Glu Asn Leu Thr Thr Leu Gly Ile  
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Thr Val Leu Ser Leu Glu Thr Leu Lys Thr Leu Phe Glu Phe Gly Ala  
675 680 685  
Leu His Lys His Ile Gln His Leu His Val Glu Glu Cys Asn Glu Leu  
690 695 700  
Leu Tyr Phe Asn Leu Pro Ser Leu Thr Asn His Gly Arg Asn Leu Arg  
705 710 715 720  
Arg Leu Ser Ile Lys Ser Cys His Asp Leu Glu Tyr Leu Val Thr Pro  
725 730 735  
Ala Asp Phe Glu Asn Asp Trp Leu Pro Ser Leu Glu Val Leu Thr Leu  
740 745 750  
His Ser Leu His Asn Leu Thr Arg Val Trp Gly Asn Ser Val Ser Gln  
755 760 765  
Asp Cys Leu Arg Asn Ile Arg Cys Ile Asn Ile Ser His Cys Asn Lys  
770 775 780  
Leu Lys Asn Val Ser Trp Val Gln Lys Leu Pro Lys Leu Glu Val Ile  
785 790 795 800  
Glu Leu Phe Asp Cys Arg Glu Ile Glu Glu Leu Ile Ser Glu His Glu  
805 810 815  
Ser Pro Ser Val Glu Asp Pro Thr Leu Phe Pro Ser Leu Lys Thr Leu

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Ser Phe Gln Lys Val Glu Thr Leu Val Ile Thr Asn Cys Pro Arg Val		
850	855	860
Lys Lys Leu Pro Phe Gln Glu Arg Arg Thr Gln Met Asn Leu Pro Thr		
865	870	875
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<400> 193  
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<210> 194  
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<213> Arabidopsis thaliana

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<223> Xaa = Thr, Ala, or Ser

<221> VARIANT

<222> 6

<223> Xaa = Leu or Val

<221> VARIANT

<222> 7

<223> Xaa = Ile, Val, or Lys

<221> VARIANT

<222> 8

<223> Xaa = Val or Thr

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Gly Leu Pro Leu Xaa Xaa Xaa Xaa

1

5

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<211> 7

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<213> Arabidopsis thaliana

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<223> Xaa = Lys or Gly

<221> VARIANT

<222> 2

<223> Xaa = Ile or Phe

<221> VARIANT

<222> 5

<223> Xaa = Asp or Lys

<221> VARIANT

<222> 6

<223> Xaa = Ala, Gly, or Asn

<400> 195

Xaa Xaa Ser Tyr Xaa Xaa Leu

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<211> 4

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<213> Arabidopsis thaliana

<400> 196

Asn Ser His Arg

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<213> Arabidopsis thaliana

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<400> 199  
His Gly Thr Tyr  
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<400> 201  
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Leu Leu Phe Thr Ala Leu Cys Ser Lys Leu Ile  
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<223> Xaa = Met or Asp

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<213> Arabidopsis thaliana

<220>  
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<210> 204  
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<221> VARIANT  
<222> 5  
<223> Xaa = Leu or Ile

<221> VARIANT  
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<223> Xaa = Arg or Gln

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Met His Asp Xaa Xaa Xaa Asp Met Gly  
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<210> 205  
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<400> 205  
Ser Lys Leu Lys Ser Leu  
1 5

<210> 206  
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<212> PRT  
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<223> Xaa = Arg or His

<221> VARIANT  
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<223> Xaa = Ile or Tyr

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<210> 207  
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<400> 207  
Ser Lys Leu Lys Ser Leu  
1 5

<210> 208  
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<213> Arabidopsis thaliana

<400> 208  
Lys Phe Ser Tyr Asp Asn Leu  
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<223> Xaa = Any Amino Acid

<221> VARIANT  
<222> 4, 15, 20, 23  
<223> Xaa = Leu, Ile, or Val

<400> 209  
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Xaa Xaa Xaa Xaa Xaa Xaa Xaa  
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<212> PRT  
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<223> Xaa = Any Amino Acid

<221> VARIANT  
<222> 4, 20, 23  
<223> Xaa = Leu, Ile, or Val

<400> 210  
Pro Xaa Xaa Xaa Xaa Xaa Leu Xaa Xaa Leu Xaa Xaa Leu Xaa Leu Xaa  
1 5 10 15  
Xaa Asn Xaa Xaa Xaa Xaa Xaa Xaa  
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<210> 211  
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<213> Arabidopsis thaliana

<220>  
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<222> 2, 3, 5, 6, 8, 9, 11  
<223> Xaa = Any Amino Acid

<221> VARIANT  
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<223> Xaa = Ile, Leu, or Val

<221> VARIANT  
<222> 10  
<223> Xaa = Ile or Leu

<400> 211  
Xaa Xaa Xaa Leu Xaa Xaa Leu Xaa Xaa Xaa Xaa Leu  
1 5 10

<210> 212  
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<212> PRT  
<213> Arabidopsis thaliana

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<223> Xaa = Ile or Arg

<221> VARIANT  
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<223> Xaa = Any Amino Acid

<400> 212

Xaa Xaa Asp Leu Xaa Xaa Xaa

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<210> 213  
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<212> PRT  
<213> *Arabidopsis thaliana*

<400> 213  
Gly Pro Gly Gly Val Gly Lys Thr  
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<210> 214  
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<212> PRT  
<213> *Arabidopsis thaliana*

<400> 214  
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<210> 215  
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<213> *Arabidopsis thaliana*

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gccatcggtg acttgaaggc catacgatgat gacctgactt tacggatcca acaagacgg 180  
ctagagggac gaagctgctc aaatcggtcc agagagtggc tttagtgcggt gcaagtaacg 240  
gagactaaaa cagccctact ttttagtgagg tttaggcgtc gggAACAGAG gacgcgaatg 300  
aggaggagat acctcagttg tttcggttgc gccgactaca aacttgcaa gaaggtttct 360  
gccatattga agagcattgg tgagctgaga gaacgctctg aagctatcaa aacagatggc 420  
gggtcaattc aagtaacttg tagagagata cccatcaagt ccgttgcgg aaataaccacg 480  
atgatggaac aggtttgga atttctcagt gaagaagaag aaagaggaat cattgggtt 540  
tatggacctg gtggggttgg gaagacaacg ttaatgcaga gcattaacaa cgagctgatc 600  
acaaaaggac atcagtatga tgtactgatt tgggttcaaa tgtccagaga attcggcgag 660  
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catactgaag ctcctaaagc agaaaactgg cgacaagcgt tggtgatctc attgttagat 1560  
aacagaatcc agacccgttgc tgaaaaactc atatgcccga aactgacaac actgatgctc 1620

caacagaaca gctcttgaa gaagattcca acagggttt tcatgcata gcctgttctc 1680  
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gccgggttggg aactgcagag ctttggagaa gatgaagcag aagaactcg attcgctgac 1980  
ttggaatact tggaaaacct aaccacactc ggtatcactg ttctctcatt ggagacccta 2040  
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<400> 216  
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<210> 217  
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<212> PRT  
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<400> 217  
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